

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

The present claim 7 has been amended to include reference characters for certain elements, so as to better illustrate the claimed subject matter. It should be noted that these amendments do not raise new issues that would require further consideration and/or search. Further, the amendments would place the present application in better position for appeal by simplifying the arguments presently at issue. Favorable consideration of the present amendment is earnestly solicited.

THE INVENTION

As set forth in the previous amendment, the present invention is generally directed to a rotational, position detecting sensor-equipped motor, capable of reducing a dimension thereof in an axial direction thereof. The motor includes a motor section including a motor stator and a motor rotor, a revolving shaft to which the motor rotor is coupled, a bearing structure for rotatably supporting the revolving shaft, and a rotational position detecting sensor for detecting a rotational position of the revolving shaft. The bearing structure, revolving shaft, motor section and rotational position detecting sensor are arranged so as to be concentric with each

other in a radial direction of the revolving shaft.

It should be especially noted that the biaxial motor of the present invention, as recited in claim 1, includes a motor frame having first and second side walls fixed on both sides in an axial direction of a fixing shaft (100). The first revolving shaft (114) and the second revolving shaft (129) are positioned between the first and second side walls and arranged concentrically with the fixing shaft (100) through a first bearing structure and a second bearing structure. The first and second revolving shafts (114), (129) are arranged so as to be aligned with each other in the axial direction of the fixing shaft (100). The above structure of the present biaxial motor, as claimed, is very different from the prior art relied on by the Examiner.

THE REJECTIONS UNDER 35 U.S.C. §102

Claims 7-9 had been finally rejected under Section 102(b) as allegedly being anticipated by Hirohiko et al. (Japanese Patent No. 10-128692). This rejection is respectfully traversed.

The Examiner again relies on Fig. 2 of Hirohiko et al., listing elements in this reference held to anticipate the present claims 7-9. However, the motor construction shown in Fig. 2 of Hirohiko et al. includes a first output shaft 20 (indicated by the Examiner as S1) acts as the revolving shaft for a first motor 20. A second output shaft 50 (indicated by the Examiner as S2) acts as the revolving shaft of a second motor 60. The first output shaft S1 is rotatably supported by bearings 130, 160 while a separate set of bearings 220, 230 and 240 are used to rotatably support the second output shaft S2. The second output shaft S2 passes through the interior of the

first output shaft S1 in such a manner than the second output shaft can rotate freely inside the first output shaft. So is it clear from the Hirohiko et al. reference that the output shafts S1, S2 are two distinct, concentrically-rotating components.

However, in the Final Action, the Examiner reads the following disclosure into the Hirohiko et al. reference:

“...a first revolving shaft (S1) and a second revolving shaft (S2)... arranged concentrically with a fixing shaft (S1/S2).”

It is therefore apparent that the Examiner reads Hirohiko et al. in such a way that the concentrically-rotating output shafts S1, S2 are distinct components while simultaneously being equivalent to a combined structure S1/S2. In this way, the Examiner presumes to find the present revolving shafts 114, 129 and also the present fixing shaft 100 from the same two elements in the Hirohiko et al. reference. However, the Examiner is mistaken in construing these components in this manner.

It is clearly shown in the present Fig. 2, and is recited in claim 7, that the present the motor frame 102 includes first and second side walls 105, 106 fixed on both sides in an axial direction of the fixing shaft 100. In other words, the fixing shaft 100 is a stationary component that does not rotate, and is bolted to the side walls 105, 106 of the motor frame 102. Fig. 2 and claim 7 further show that the first and second revolving shafts 114, 129 are positioned between the first and second side walls 105, 106 and arranged concentrically with said fixing shaft 100 through associated first and second bearing structures 128, 151.

It is thus clear from Fig. 2 and claim 7 that the “revolving shafts 114, 129” and the “fixing shaft 100” are distinct components. It is further clear from the disclosure and the claim that the revolving shafts are concentrically supported by the fixing shaft. There is therefore no way that the two components of Hirohiko et al. could be construed as

simultaneously being equivalent to two rotating components and a distinct third, interacting component as recited in the present claim 7. Still further, it is clear that rotatable output shafts S1, S2 of Hirohiko et al. cannot be construed as being equivalent to a stationary fixing shaft, mounted to the motor frame, for providing a concentric support to the movable revolving shafts 114, 129.

Further to the above, the Hirohiko et al. reference discloses that an arm 21 is mounted on an end of the first output shaft 20. A first pulley 51 is mounted on an end of the second output shaft 50. The first pulley 51 conveys rotation to a second pulley 52 via a belt 53. It is therefore further clear that Hirohiko et al. fails to disclose other features of the invention defined in claim 7, including:

"a first output plate arranged so as to extend outwardly in a radial direction of said first revolving shaft from a space defined between said first rotational position detecting sensor-equipped motor and said second rotational position detecting sensor-equipped motor;

said first output plate being fixed on said first revolving shaft of said first rotational position detecting sensor-equipped motor and said first rotation frame, to thereby be rotated with said first revolving shaft; and

a second output plate arranged so as to extend outwardly in a radial direction of said second revolving shaft from said space;

said second output plate being fixed on said second revolving shaft of said second rotational position detecting sensor-equipped motor and said second rotation frame, to thereby be rotated with said second revolving shaft".

Insofar as the Hirohiko reference, as interpreted and understood by the undersigned, completely fails to disclose the above-quoted features of the invention, if the Examiner intends to maintain the rejections based upon Hirohiko, it is respectfully requested that some explanation be given as to how this reference is being interpreted as showing the required first and second output plates as being disposed in the claimed positions relative to the first and second motors. In this regard it is noted that the elements 34, 64 identified by the Examiner as being the 'first and second output plates' are neither

output plates nor disposed between the first and second motors, as required. Accordingly, if the rejection is maintained on the current grounds, further clarification by the Examiner as to his understanding and interpretation of the reference would be appreciated.

In view of the above, it is quite clear that the motor construction shown in Hirohiko et al. is very different from the present invention. As noted hereinbefore, Hirohiko et al. cannot be construed as teaching the structure recited in independent claim 7. Rather, on closer examination it is clear that Hirohiko et al. plainly teaches away from the present invention. In any event, Hirohiko et al. fails to disclose every feature of the present claims as is required for anticipation. It is therefore respectfully submitted that Hirohiko et al. cannot be relied upon for anticipating independent claim 7-9 under the requirements of Section 102. Reconsideration and withdrawal of these grounds of rejection is therefore respectfully requested.

The dependent claims 8 and 9 recite additional limitations that are not shown by the Hirohiko et al. reference. However, since the dependent claims further limit an independent claim, it is respectfully submitted that claims 8 and 9 are allowable for at least the same reasons as independent claim 7. Reconsideration and withdrawal of the rejections of these claims is also respectfully requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. NIS-12830.

Respectfully submitted,

RANKIN, HILL, PORTER & CLARK LLP

By


Jay P. Ryan
Agent for Applicant
Registration No. 37,064

4080 Erie Street
Willoughby, Ohio 44094
(216) 566-9700